TM 11-1259

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

RADAR TEST SET AN/MPM-24

DEPARTMENT OF THE ARMY • *MAY 1955*

TAGO 5399B—May

WARNING

HIGH VOLTAGE

is used in the operation of
this equipment.

DEATH ON CONTACT

may result if operating personnel
fail to observe safety precautions.

TECHNICAL MANUAL
No. 11–1259

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *20 May 1955*

RADAR TEST SET AN/MPM–24

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CHAPTER 1
INTRODUCTION

1. Scope

a. This manual contains general information on Radar Test Set AN/MPM–24 and a list of its components. Specific instructions on the installation, operation, maintenance, and repair of the individual components of the test set are found in the literature on that particular component.

b. Forward comments on this publication direct to Commanding Officer, The Signal Corps Publications Agency, Fort Monmouth, New Jersey, ATTN: Standards Division.

2. Forms and Records

The following standard forms will be used for reporting unsatisfactory conditions of Army equipment and when performing preventive maintenance.

a. DD Form 6, Report of Damaged or Improper Shipment, will be filled out and forwarded as prescribed in SR 745–45–5.

b. DA Form 468, Unsatisfactory Equipment Report, will be filled out and forwarded to the Office of the Chief Signal Officer, as prescribed in SR 700–45–5.

c. DA Form 11–238, Operator First Echelon Maintenance Check List for Signal Corps Equipment (Radio Communication, Direction Finding, Carrier, Radar), will be prepared in accordance with instructions on the back of the form.

d. DA Form 11–239, Second and Third Echelon Maintenance Check List for Signal Corps Equipment (Radio Communication, Direction Finding, Carrier, Radar) will be prepared in accordance with instructions on the back of the form.

e. Use other forms and records as authorized.

CHAPTER 2
DESCRIPTION AND DATA

3. Purpose and Use

a. Radar Test Set AN/MPM–24 contains the special items of test equipment required to perform field and depot maintenance operations on Radar Set AN/MPQ–10 and Radar Set AN/MPQ–10A.

b. Components of Radar Test Set AN/MPM–24 are packed and carried in two chests CH–273, which are transported in a maintenance truck. This truck also carries Test Set AN/GPM–1 described in TM 11–1080. Test Set AN/GPM–1 contains the general items of test equipment, and Radar Test Set AN/MPM–24 contains the special items. The two test sets comprise the necessary equipment and tools required for field and depot maintenance of the applicable radar equipments.

4. List of Components

The components of Radar Test Set AN/MPM–24 are as follows:

Required No.	Component
1	Power Supply Group OA–565/MPM–24
1	Power Meter TS–125/AP
1	Ohmmeter ZM–21A/U
1	Resistance Bridge ZM–4B/U
1	Crystal Rectifier Test Set TS–268E/U
1	Fluxmeter TS–15C/AP
1	Wavemeter Test Set TS–117/GP
1	Radio Frequency Indicator TS–446/U
1	Dummy Load DA–18/U
1	Electrical Dummy Load DA–64A/UP
1	Adapter Connector UG–405/U
2	Chest CH–273
1	Signal Generator TS–155C/UP
1	Signal Generator TS–452C/U
1	Special Purpose Branched Electrical Cable Assembly CX–2488/MPM–24
1	Spanner wrench, 7-inch
1	Spanner wrench, ⅞-inch
1	Strap wrench
1	Hex socket wrench
1	Box wrench TL–646/U
1	Plunger positioning gage

5. Power Requirements

The power for operating the various items of Radar Test Set AN/MPM–24 may be obtained from either Trailer K–52, which is authorized on TOE, or a 115-volt, 60-cycle, commercial power source. Power Supply Group OA–565/MPM–24 is furnished as part of Radar Test Set AN/MPM–24 to provide the voltage required to operate most of the removable units of Radar Sets AN/MPQ–10 and AN/MPQ–10A.

6. Power Supply Group OA–565/MPM–24 (fig. 1)

Power Supply Group OA–565/MPM–24 is a portable, direct current (dc) power supply designed to provide the voltages required to operate most of the removable units of Radar Sets AN/MPQ–10 and AN/MPQ–10A when it becomes necessary to test or repair these units. It consists of a dustproof metal cabinet (Electrical Equipment Cabinet CY–1741/MPM–24), which contains two positive Power Supplies PP–745/MPQ–10, one negative Power Supply PP–746/MPQ–10, one Voltage Regulator CN–167/MPQ–10, a filament assembly chassis, and an amplifier loading chassis. One positive power supply furnishes +400 volts to the voltage regulator; the second positive power supply provides +250 volts unregulated dc to substitute for the 250 volt generator in the radar set. The negative power supply provides —300 volts to various receptacles on the front panel. The voltage regulator receives an unregulated 400 volts from the first positive power supply and provides regulated voltages of 150, 200 and 300 volts. In addition, the regulator provides for the adjustment of the unregulated +250 volts by means of a front panel control. The filament assembly chassis mounts four 6.3-volt filament transformers which supply all the filament current needed for the operation of the power supply group. The amplifier loading chassis is composed of 14 resistors which approximate the loading of the 5 servo motors and 2 servo generators of the radar set. These resistors, operating in pairs, substitute for the field windings of the respective servo motors and generators. The power supply group also furnishes a dc range signal, has manual controls for varying the receiver gain and repetition rate and energizes most of the chassis relays. The rear of the cabinet contains metallic air filters through which air is drawn by a blower motor and circulated through the power supply. All the operating jacks, receptacles, and controls are located on the front panel. A set of interconnecting cables of three different types are supplied and used to make the necessary connections between the power supply group and

the radar unit under test. A 6-foot long Electrical Power Cable Assembly CX–2901/U is also supplied to connect the power supply group to the required 115-volt, 60-cycle, single-phase, alternating-current (ac) source. A complete description of the operation, maintenance, and functioning of parts is contained in the literature packed with the power supply.

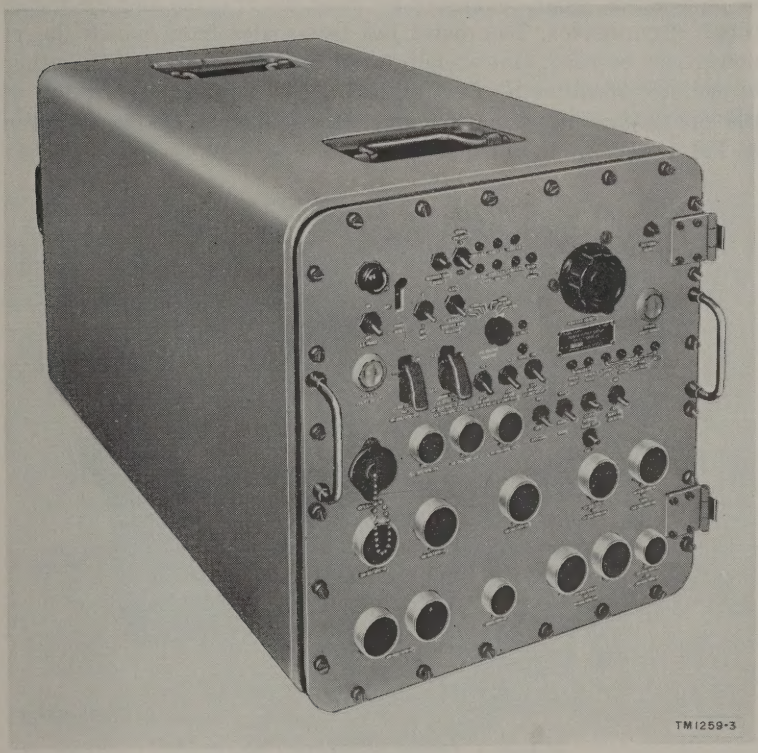

Figure 1. Power Supply Group OA–565/MPM–24.

7. Power Meter TS–125/AP
(fig. 2)

Power Meter TS–125/AP is a compact battery-operated wattmeter which measures average radio frequency (rf) power in the frequency range of 2,400 to 3,335 megacycles per second. The instrument is incased in a cast-aluminum box with the meter and balance control on the top. Operating power is obtained from three standard 1½-volt flashlight batteries. A pick-up horn antenna (Antenna AT–67/AP), a length of rf cable (Cord CG–171A/AP), and two Attenuators CN–42/UP and CN–43/UP are

provided with the power meter. When not in use, the pick-up horn antenna and rf cable are stored in the lid, and the two attenuators are stored in the case. In operation, the rf energy is coupled from the radar antenna to the power meter by means of the pick-up horn antenna or by direct connection to the directional coupler on the radar set. The attenuators increase the range of the meter by 10 or 16 decibels, when connected between the rf cable and the meter input rf connector. The meter has two scales from which the rf power can be read. One is calibrated in milliwatts, and the other in decibels above or below 1 milliwatt. A complete description of the operation, maintenance, and functioning of parts is given in TM 11–1217.

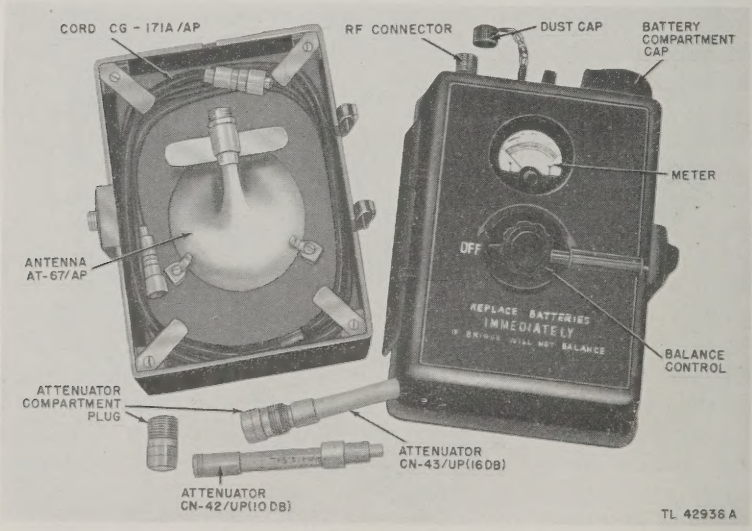

Figure 2. Power Meter TS–125/AP.

8. Ohmmeter ZM–21A/U

(fig. 3)

Ohmmeter ZM–21A/U is a self-contained, portable, constant-voltage insulation resistance measuring test set used to determine the insulation resistance between the conductors of multiconductor cables, the windings and windings to ground of transformers and rotating equipment, and all other types of electrical equipment where insulation resistance is an important factor. The test set consists essentially of a high resistance ohmmeter and a 500-volt, hand-operated generator. The ohmmeter measures insulation resistances from 0 to 1,000 megohms with an

accuracy of plus or minus 1 percent of any cardinal calibration point. The ohmmeter is located behind a glass window on the top of the instrument case and is protected by a hinged cover. Three 6-foot long cables for connecting the instrument to the equipment under test and a carrying case for transporting the ohmmeter and storing the test leads are provided. A complete description of the operation, maintenance, and functioning of parts is contained in TM 11–2050.

Caution: Do not use Ohmmeter ZM–21A/U on equipment having an operating voltage of less than 500 volts. The potential applied may damage the equipment under test.

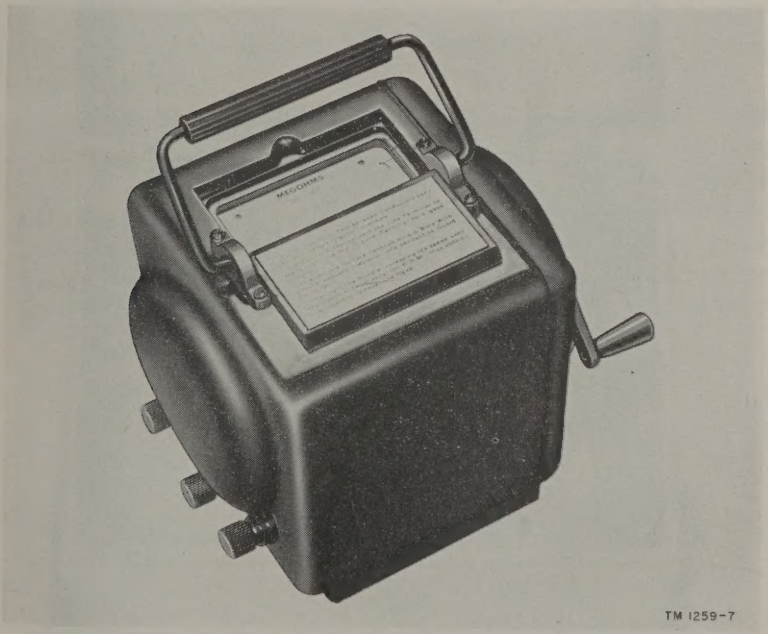

Figure 3. Ohmmeter ZM–21A/U with meter window open.

9. Resistance Bridge ZM–4B/U

(fig. 4)

Resistance Bridge ZM–4B/U is readily portable equipment weighing approximately 8 pounds. It is used primarily to measure resistance when localizing faults on power and communication system transmission lines. It can also be used to measure any fixed resistance or to obtain the center position of potentiometers

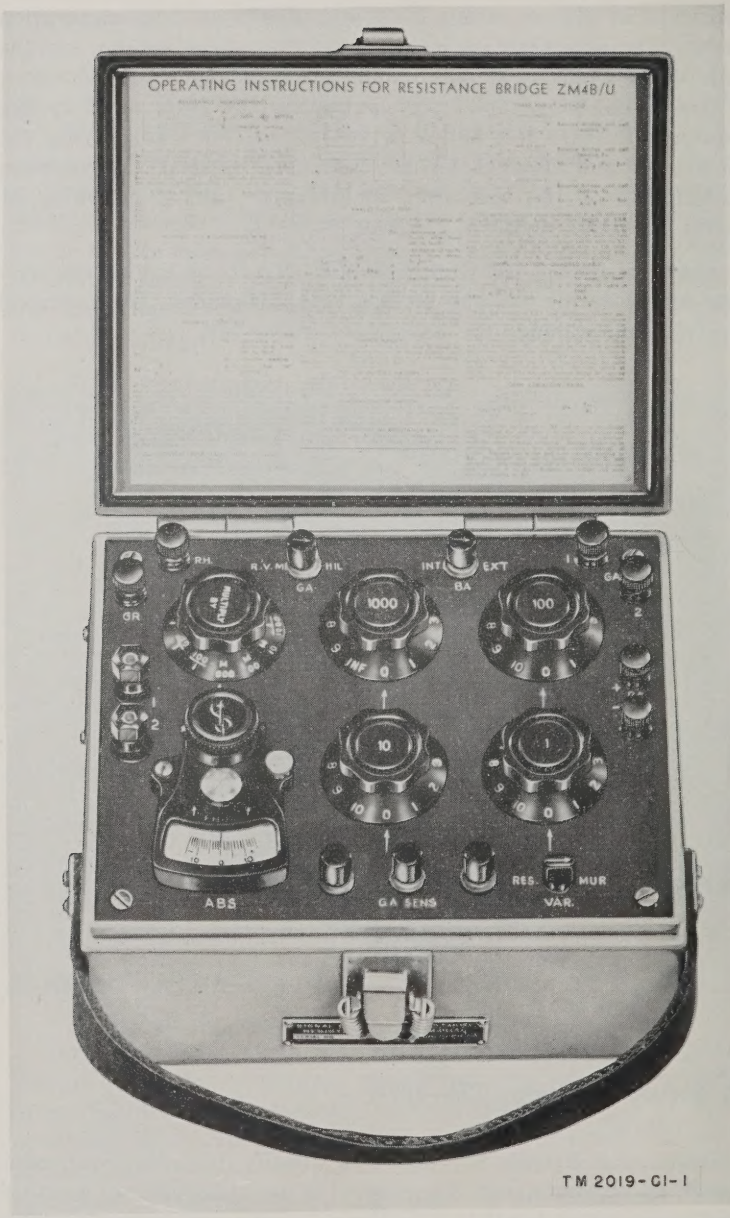

Figure 4. Resistance Bridge ZM–4B/U, with cover raised.

and heliopots in the alinement procedures for the electronic computer in Radar Set AN/MPQ–10A. The equipment is contained in an aluminum case with a separable, hinged lid equipped with a snap latch. The case is provided with a plastic handle for carrying purposes. The equipment is self-contained. It has a galvanometer mounted in the top plate and three flashlight-type dry cells mounted in a compartment in the case. The dry cells supply the current for the measuring circuit. Readily accessible terminals are provided to connect a separately mounted galvanometer and external dry cells. When the external dry cells or the galvanometer is used, the corresponding internal item must be disconnected. A complete description of the installation, operation, maintenance, and functioning of parts is contained in TM 11–2019.

10. Crystal Rectifier Test Set TS–268E/U

(fig. 5)

Crystal Rectifier Test Set TS–268E/U is a completely self-contained, portable, battery-operated unit in a waterproof aluminum case. It is a combination ohmmeter-ammeter, designed to permit rapid qualitative tests of specific types of rf crystal rectifiers. Measurements of the front resistance, back resistance, and back current may be made with this equipment, and the condition of the crystal determined by comparing the results obtained to

Figure 5. Crystal Rectifier Test Set TS–268/U.

typical values given for each type of crystal. The test set is powered from a 1.5-volt battery mounted within the case. The 0- to 1-milliampere (ma) direct-current meter mounted in the front panel indicates the resistance in kilohms and the back current in milliamperes. In addition, there is a five-position meter switch for calibrating and selecting the type of meter operation; an ADJUST METER potentiometer, used for zeroing the meter; a PUSH to OPERATE switch and two crystal holders. One holder is a snap-in type, equipped with a trip lever to facilitate removal of crystals; the other is a coaxial type for testing 1N26 crystals. Maximum allowable back current values for crystals are listed in the operating instructions located on the inside of the cover of the case. A complete description of the operation, maintenance, and functioning of parts is given in TM 11–1242.

11. Fluxmeter TS–15C/AP

(fig. 6)

Fluxmeter TS–15C/AP is a portable, ruggedized, submersion-proof test set, designed specifically to measure flux densities in the range of 1,200 to 9,600 gausses in magnets used in oscillatory circuits of X-band and S-band transmitters. It consists mainly of a gauss meter and a probe meter. The gauss meter and associated circuit and controls are mounted in a panel chassis assembly, contained in a metal carrying case. The case is provided with a carrying handle that can be locked in an easel position or a folded position. A detachable cover, which protects the meter face and the controls when the equipment is not in use, also serves as a storage place for four adapters, a handle, and the probe meter. The probe meter is incorporated in a special probe head attached to a length of cable terminating in a mating plug. The probe meter is connected to the fluxmeter by inserting the plug into the PROBE receptacle on the front panel. Mounted on the front panel of the fluxmeter are the PROBE receptacle, the GAUSS meter, the four operating controls, and the battery compartment cover. Four adapters are provided to make possible the mounting of the probe meter between the poles of magnets which have gaps extending from .6 inch to $4\frac{7}{16}$ inches. For magnets of larger gaps, a handle is provided so that the probe meter can be held between the magnet poles by hand. One BA–30 battery is equipped to supply the operating power for the fluxmeter. A complete description of the theory, operation, and maintenance of Fluxmeter TS–15C/AP is contained in the literature packed with the equipment.

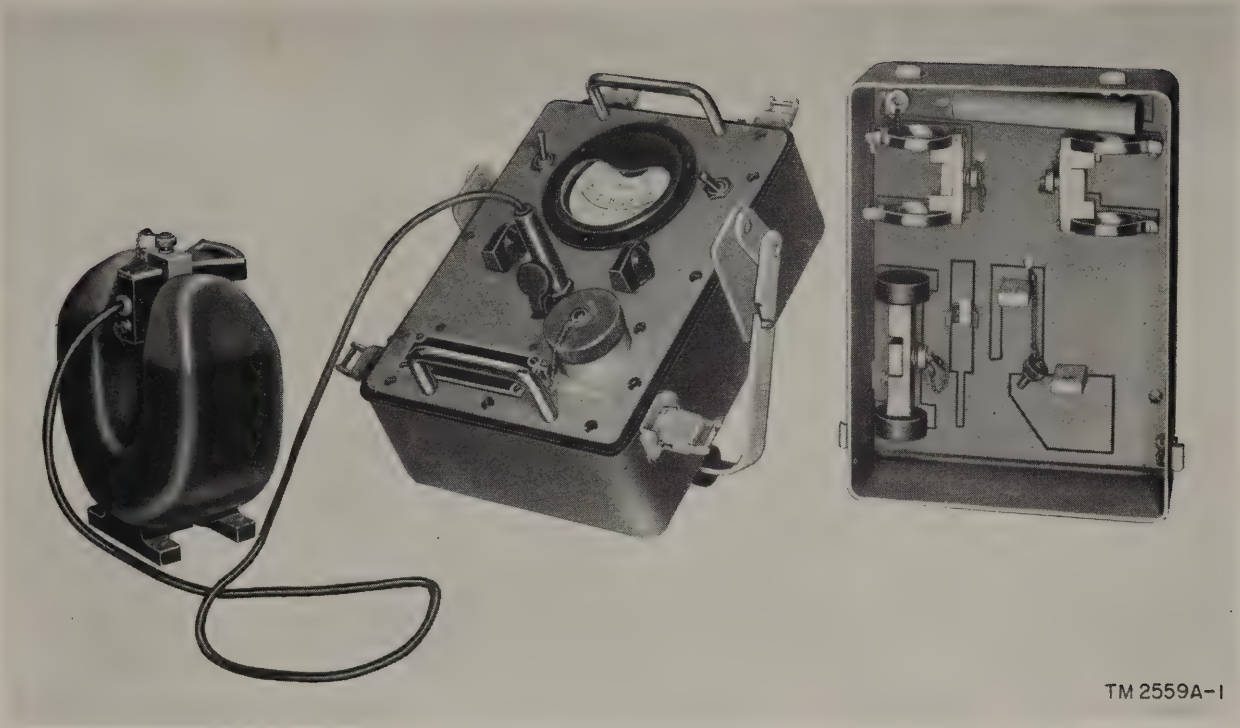

Figure 6. Fluxmeter TS–15C/AP.

12. Wavemeter Test Set TS–117/GP

(fig. 7)

Wavemeter Test Set TS–117/GP is designed to make frequency measurements of radar systems operating in the frequency band from 2,400 to 3,400 megacycles (mc). The test set can be used to measure the frequency of a radar system by placing it in the field of microwave energy radiating from the antenna of the system. The frequencies of local oscillators can be measured by making a cable connection from the test set to the local oscillator. The instrument also can be used to make field strength measurements and to determine the relative power output of radar systems

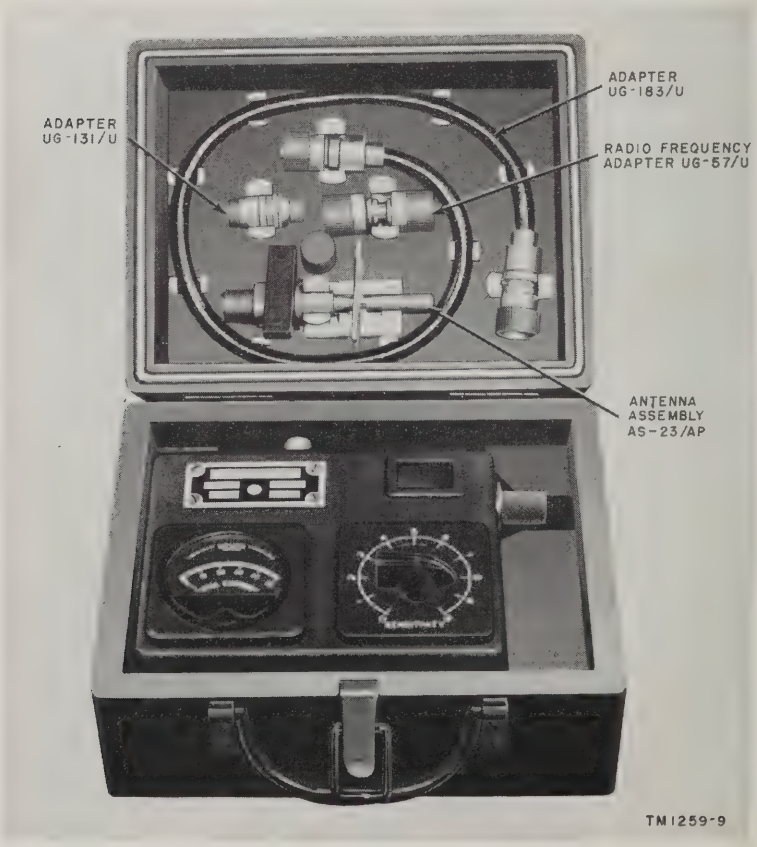

Figure 7. Wavemeter Test Set TS–117/GP.

operating in the band of frequencies stated above. The instrument consists of a resonant cavity tuned by a calibrated micrometer screw and coupled to a crystal rectifier and meter. A sensitivity control for the meter is also included. A complete description of the operation, maintenance, and functioning of parts is given in TM 11–2538.

13. Radio Frequency Indicator TS–446/U

(fig. 8)

Radio Frequency Indicator TS–446/U is a pencil-type rf indicator used to test for rf energy in the components of the radar set. The barrel contains a 105- to 125-volt, $\frac{1}{25}$-watt neon lamp which is connected to a probe extending from one end of the indicator. When the probe contacts a circuit carrying rf energy, the lamp glows.

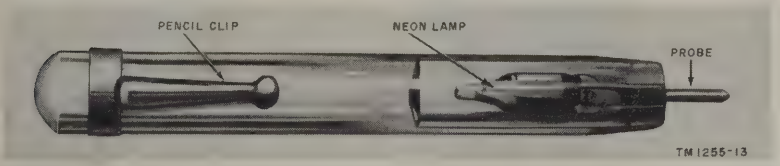

Figure 8. Radio Frequency Indicator TS–446/U.

14. Dummy Load DA–18/U

(fig. 9)

Dummy Load DA–18/U is a portable, general purpose, high power-dissipating, wave-guide type, rf dummy load designed to terminate rf transmission lines of radar sets. It prevents radiation of rf energy while certain components of the system are being tested. It consists of a section of wave guide with a flange on one end, a shorting plate on the other end, and a centrally supported section with power-dissipating material inside. The dummy load has a frequency range from 2,600 to 3,950 megacycles per second and is capable of dissipating up to 600 watts average power and 800 kilowatts peak power for pulses of 1-microsecond duration. Adapter Connector UG–405/U is necessary for making connection between the dummy load and the rf transmission line of the radar set. Transit Case CY–765/U is used to carry or store the dummy load when it is not in use.

Figure 9. Dummy Load DA–18/U with carrying case.

15. Adapter Connector UG–405/U

(fig. 10)

Adapter Connector UG–405/U is a wave guide to coaxial line adapter. It is used to make connection between the flexible coaxial transmission line of Radar Sets AN/MPQ–10 and AN/MPQ–10A and Dummy Load DA–18/U when making tests on the radar set. The adapter has a nominal coaxial impedance of 50 ohms and a maximum voltage standing wave ratio of 1.25:1 over a frequency range of 2,600 to 3,950 megacycles per second.

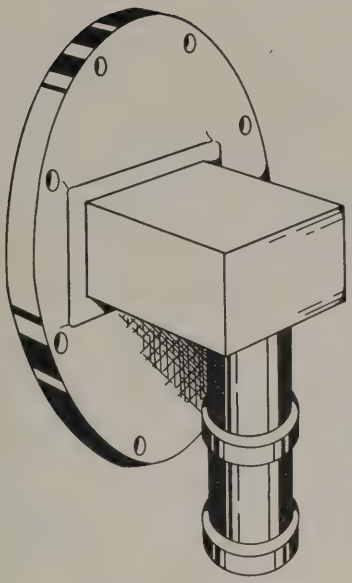

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Figure 10. Adapter Connector UG–405/U.

16. Electrical Dummy Load DA–64A/UP

(fig. 11)

This is a portable, general purpose, high power-dissipating dummy load used for testing radar modulators. It is housed in a metal case provided with a carrying handle. Removable dust covers mounted on the front and rear of the case are used to protect the dummy load and store the coaxial cable, connectors, and adapter when not in use. The coaxial cable connects the output of the modulator to the input of the dummy load, and the connectors and adapter make it possible to mate various modulator output connectors to the coaxial cable. The dummy load consists of a parallel network of heavy duty, noninductive wire-wound resistors. One end of this network connects to a large coaxial input connector mounted in the center of the front panel and the other end connects to ground. A 100 to 1 voltage tap on the network is wired to a small front panel connector to which an ocilloscope may be connected for viewing the modulator pulse. The dummy load operates at frequencies up to 3 megacycles and is designed to function normally for peak input voltages up to a maximum of 10,000 volts and for pulse lengths of .5 to 5 microseconds. It has a

nominal input impedance of 50 ohms and is capable of dissipating a maximum 1,200-watt average power or 2.0-megawatt peak power. An ac power cable connected to the rear of the dummy load supplies the required 115-volt, 50- to 1,000-cycle power to the rectifier for the motor-driven blower. The blower circulates air through the dummy load to prevent overheating. An ac line switch is omitted so that the cooling fan operates at all times, thereby minimizing the possibility of using the dummy load without adequate ventilation. Operation, theory, and maintenance of the dummy load is contained in the literature packed with the equipment.

Figure 11. Electrical Dummy Load DA–64A/UP.

17. Chest CH–273

(fig. 12)

Chest CH–273 is a wooden chest 42½ inches long, 22½ inches wide, and 22¼ inches high. Two of these chests are furnished to store the smaller components of Radar Test Set AN/MPM–24.

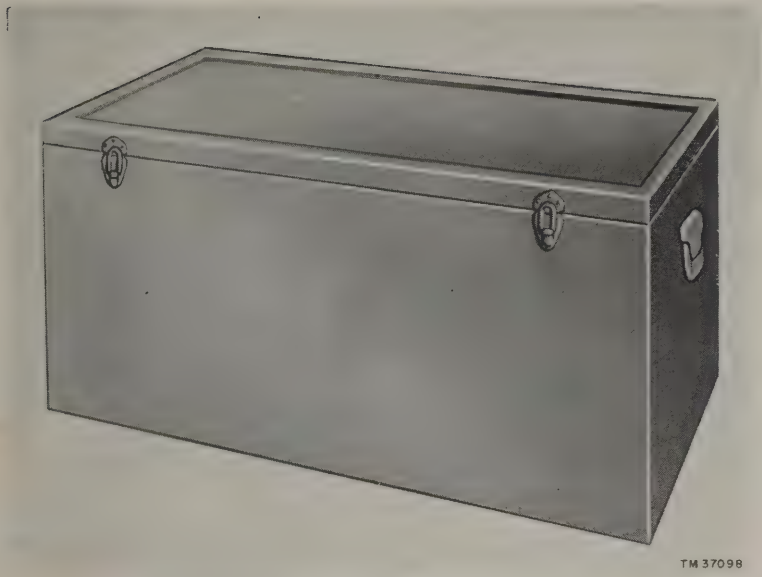

Figure 12. Chest CH–273.

18. Signal Generator TS–155C/UP
(fig. 13)

Signal Generator TS–155C/UP is a precision instrument designed to provide a source of calibrated, pulse-modulated, rf signals for measuring the sensitivity of the radar receiver, and to operate as an rf wattmeter for checking the power output of the radar transmitter. By means of interchangeable cavity oscillator grid cylinders, the set may be used in the following freqency bands: 2,700 to 2,900 mc, 2,900 to 3,100 mc, and any 200-mc band within the range of 3,100 to 3,400 mc. Adapter connector assemblies, cable, and horn antenna are provided for connecting the signal generator to the radar set under test. The generator can be operated from any 105- to 125-volt, 50- to 1,000-cycle ac power source. A complete description of the operation, maintenance, installation, and functioning of parts of the signal generator is given in TM 11–2657C.

19. Signal Generator TS–452C/U
(fig. 14)

Signal Generator TS–452C/U is a portable test set used for testing and visually alining radio-frequency and intermediate frequency (if.) sections of radio and radar receivers. The set contains

Figure 13. Signal Generator TS–155C/UP.

a frequency-modulated signal generator, an oscilloscope, and a wavemeter. The signal generator provides a frequency-modulated rf signal output of constant amplitude within a frequency range of 5 to 100 megacycles. Six plug-in coils are used to cover the frequency range in six bands with frequencies of 5 to 10 mc, 8 to 15 mc, 12 to 24 mc, 19 to 39 mc, 30 to 60 mc, and 47 to 100 mc. Each band is frequency-modulated by means of a motor-driven sweep capacitor, the speed of which can be varied between 60 and 100 cycles per second (cps) with a front panel control. In operation, the output of the test set is injected into the if section of the radar receiver, and the bandwidth or response curve is viewed on the built-in oscilloscope. A blanked marker of known frequency is obtained from the wavemeter and superimposed on the oscilloscope pattern. The wavemeter is continuously variable in four bands and provides a blanked marker for any frequency from 5 to 100 megacycles. A 115-volt, 50- to 1,600-cps, single-phase alternating power source is required to operate the set. Detailed operating and maintenance instructions are contained in the literature packed with the equipment.

Figure 14. Signal Generator TS–452C/U.

20. Special Purpose Branched Electrical Cable Assembly CX–2488/MPM–24

(fig. 15)

This cable assembly is used to supply operating power and trigger pulses to Interrogator Set AN/TPX–21 in conjunction with Power Supply Group OA–565/MPM–24 and Radar Test Set AN/UPM–4 or AN/UPM–6B. The overall length of the cable assembly is 8 feet and consists of one 5-conductor cable, one 2-conductor ac power cable, and two Radio Frequency Cables RG–58C/U assembled as shown in figure 15. The cable asssembly has five branches, each branch extending 4 feet from a common center clamp and terminating as follows: the first branch (W702) terminates in Connector Plug AN–3106A–28–16P; the second branch (W702C) terminates on Connector Plug AN–3106A–14S–9S and Adapter AN–3057–6A; the third and fourth branches (W702A and W702B) are each terminated by Radio Frequency Plug UG–88/U; the fifth branch terminates in Amphenol Plug 26–153. Detailed description and instructions for the use of this cable are contained in TM 11–1192.

21. Tools Supplied with Radar Test Set AN/MPM–24

(fig. 16)

The following tools are supplied with Radar Test Set AN/MPM–24 for use in performing field and depot maintenance on Radar

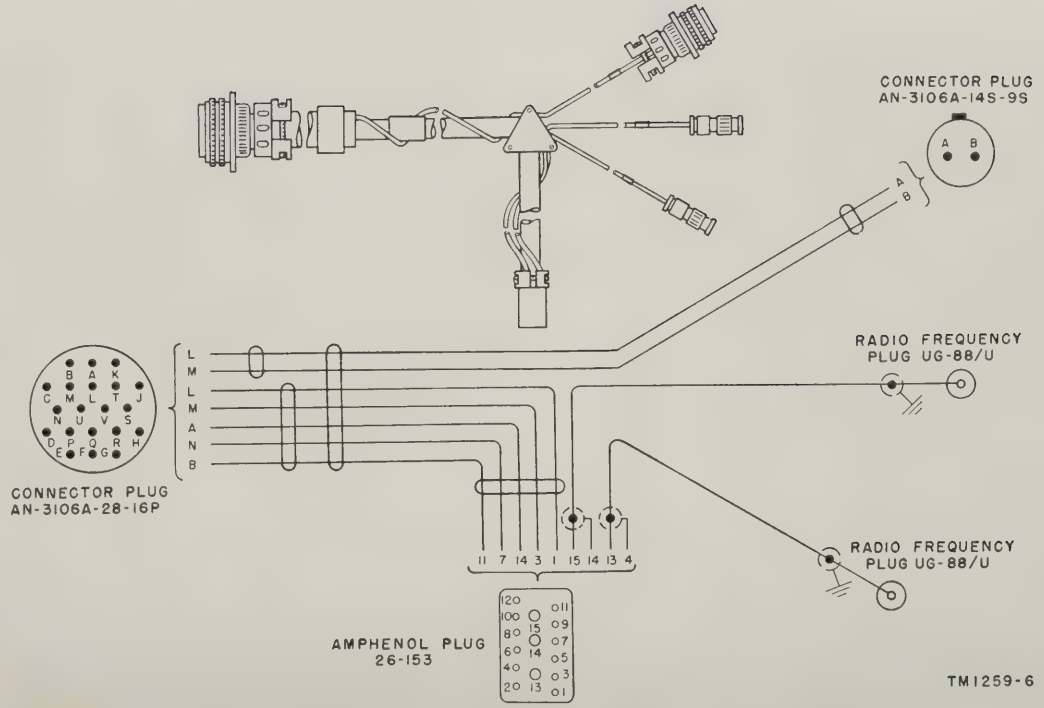

Figure 15. Special Purpose Branched Electrical Cable Assembly CX-2488/MPM-24.

Sets AN/MPQ–10 and AN/MPQ–10A. The use of these tools is described in detail in TM 11–1303 and TM 11–1086.

Tools	*Use*
Spanner wrench, 7-inch_____	Removal and replacement of the antenna.
Strap wrench_____	Removal and replacement of the antenna spinner.
Hex socket wrench, ½-inch__	Removal and replacement of the acorn nut and lock nut that secure the tuning dial to the shaft of the echo box tuning plunger.
Spanner wrench, ⅞-inch____	Adjustment, removal, and replacement of the echo box coupling loop.
Plunger positioning gage___	Alining the plunger in the echo box with respect to the dial calibration.
Box Wrench TL–646/U_____	Removal and replacement of the azimuth drive motor.

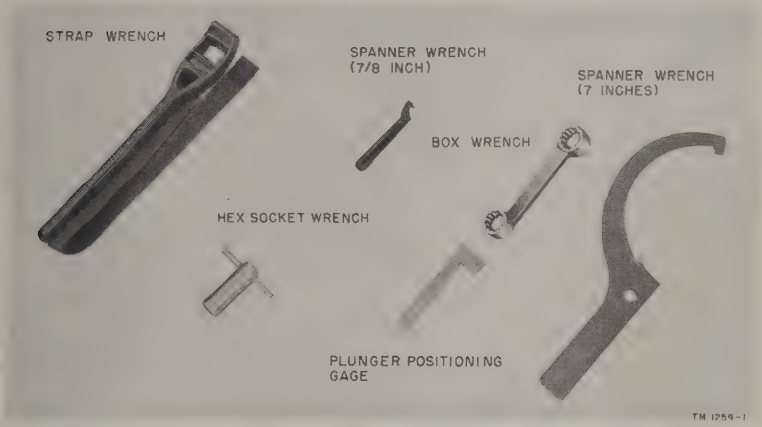

Figure 16. Tools supplied with Radar Test Set AN/MPM–24.

CHAPTER 3

PREVENTIVE MAINTENANCE

22. Definition of Preventive Maintenance

Preventive maintenance is a series of systematic operations performed on equipment at regular intervals (usually when the equipment is not in use) to keep it in good working order so that breakdowns and needless interruptions in service will be kept to a minimum. Preventive maintenance differs from troubleshooting and repair since its object is to prevent certain troubles from occurring.

23. General Preventive Maintenance Techniques

a. Use No. 000 sandpaper to remove corrosion.

b. Use a clean, dry, lint-free cloth or a dry brush for cleaning.

(1) If necessary, except for electrical contacts, moisten the cloth or brush with Solvent, Dry Cleaning (SD); then wipe the parts dry with a cloth.

(2) Clean electrical contacts with a cloth moistened with carbon tetrachloride; then wige them dry with a cloth.

Caution: Repeated contact of carbon tetrachloride with the skin or prolonged breathing of the fumes is dangerous. Make sure adequate ventilation is provided.

c. If available, dry compressed air may be used at a line pressure not exceeding 60 pounds per square inch to remove dust from inaccessible places; be careful, however, or mechanical damage from the air blast may result.

d. For further information on preventive maintenance techniques, refer to TB SIG 178.

24. Preventive Maintenance Instructions

Preventive maintenance instructions for components of Radar Test Set AN/MPM–24, such as the power meter, dummy loads, test sets, resistance bridge, and signal generators, are contained in the literature for that particular instrument. Preventive maintenance of miscellaneous items is as follows:

a. Chests. Clean the chests periodically to prevent dust and dirt from accumulating on the test equipment stored in them.

Scrape off all broken or cracked paint and repaint the affected area. Use sandpaper to remove the paint and to prepare the surface for the new coat of paint.

b. Cords. Inspect the cords regularly for worn or damaged covering and insulation. If any such places are found, repair or replace the damaged cord immediately.

c. Adapters and Plugs. Clean the plugs and adapters periodically to keep dirt and corrosion from accumulating around the pins and threads of the connecting rings. Never force plugs or adapters together when making a connection; the threads may be stripped or the pins bent until they are of no further use. Any bent or broken plugs or adapters must be repaired or replaced immediately.

d. Tools. Proper care and use of the tools is necessary at all times. Keep all tools clean and free from dust. Do not attempt to use a tool for some other purpose than that for which it is intended; otherwise, damage to the tool or to the equipment on which it is being used may result.

e. Crystals. Crystals must be handled carefully. Do not drop them. In dry climates, handle a crystal as little as possible; static discharges from the fingers will burn out a crystal. Never allow a crystal to be left unshielded near a field of microwave energy; such a field will burn out crystals.

25. Weatherproofing

a. General. Signal Corps equipment, when operated under severe climatic conditions such as prevail in tropical, arctic, and desert regions, requires special treatment and maintenance. Fungus growth, insects, dust, corrosion, salt spray, excessive moisture, and extreme temperatures are harmful to most materials.

b. Tropical Maintenance. A special moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree of protection. This treatment is explained in TB SIG 13 and TB SIG 72.

c. Arctic Maintenance. Special precautions necessary to prevent poor performance or total operational failure of equipment in extremely low temperatures are explained in TB SIG 66 and TB SIG 219.

d. Desert Maintenance. Special precautions necessary to prevent equipment failure in areas subject to extremely high temperatures, low humidity, and excessive sand and dust are explained in TB SIG 75.

c. Lubrication. The effects of extreme cold and heat on materials and lubricants are explained in TB SIG 69. Observe all precautions outlined in TB SIG 69 and pay strict attention to all lubrication orders when operating equipment under conditions of extreme cold or heat. Lubrication information for specific components is contained in the literature packed with the respective instruments.

CHAPTER 4

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

26. Shipment and Limited Storage

Radar Test Set AN/MPM–24 consists of several components. Refer to the literature packed with the particular component for information on methods of shipment and limited storage.

27. Demolition of Materiel to Prevent Enemy Use

Demolition of the equipment will be accomplished only upon order of the commander. Paragraph 28 gives the methods of destruction.

28. Methods of Destruction

a. Smash. Smash the crystal, controls, tubes, coils, switches, capacitors, transformers, and headsets; use sledges, axes, handaxes, pickaxes, hammers, crowbars, or other heavy tools.

b. Cut. Cut cords, headsets, and wiring; use axes, handaxes, or machetes.

c. Burn. Burn cords, resistors, capacitors, coils, wiring, and technical manuals; use gasoline, kerosene, oil, flame throwers, or incendiary grenades.

d. Bend. Bend panels, cabinets, and chassis.

e. Explode. If explosives are necessary, use firearms, grenades, or TNT.

f. Dispose. Bury or scatter the destroyed parts in slit trenches, holes, or throw them into streams.

g. Destroy. Destroy everything.

BY ORDER OF THE SECRETARY OF THE ARMY:

M. B. RIDGWAY,
General, United States Army,
Chief of Staff.

OFFICIAL:

JOHN A. KLEIN,
Major General, United States Army,
The Adjutant General.

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6–125A, FA Bn (105mm How, Towed) (2)
6–126, Hq&Hq Btry, FA Bn (105mm How, Towed) (2)
6–200A, Div Arty, Abn Div (2)
6–225A, Abn FA Bn (105mm How, Towed) (2)
6–226A, Hq&Hq Btry, Abn FA Bn (105mm How, Towed) (2)
6–300, Div Arty, Armd Div (2)
6–315, FA Bn (105mm How, SP Armd) (2)
6–316, Hq&Hq Btry, Armd FA Bn (105mm How, SP, Div) (2)
6–535A, FA Bn (280mm Gun) (2)
6–537A, FA Btry (280-mm Gun) (2)
6–538A, FA Rkt Btry (762mm) (2)
6–575, FA Obsr Bn (2)
6–577, FA Obsr Btry (2)
7A, Inf Div (2)
11–7, Sig Co Inf Div (2)
11–16A, Hq&Hq Co, Sig Bn, Corps or Abn Corps (2)
11–57, Armd Sig Co (2)
11–127, Sig Rep Co (2)
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11–500A, (AA–AE), Sig Svc Org (2)
11–557A, Abn Sig Co (2)
11–587A, Sig Base Maint Co (2)
11–592A, Hq&Hq Co, Sig Base Depot (2)
11–597A, Sig Base Depot Co (2)
17A, Armd Div (2)
57, Abn Div (2)

NG: State AG (6); Units same as Active Army except allowance is one copy to each unit.
USAR: None.
For explanation of abbreviations used, see SR 320–50–1.

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